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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/355,637	08/02/1999 ,	KLAUS-DIETER HAMMER	051009/0122	6739

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EXAMINER

HON, SOW FUN

ART UNIT PAPER NUMBER

1772

DATE MAILED: 12/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application N .

09/355,637

Applicant(s)

HAMMER ET AL.

Examiner

Sow-Fun Hon

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13, 15, 16 and 18-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13, 15, 16 and 18-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 21. 6) ☐ Other: \_\_\_\_\_

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## **DETAILED ACTION**

### ***Withdrawn Rejections***

1. The 35 U.S.C. 103(a) rejections in Paper # 9 (mailed 04/17/03) are withdrawn in view of the new rejections set forth below.

### ***New Rejections***

#### ***Claim Objections***

2. Claim 24 is objected to because of the following informalities: The limitation "... from 30 to 60 mm" should really read "from 30 to 60  $\mu$ m". See Paper # 18 (filed 02/05/03).  
Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 103***

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
4. Claims 1-10, 12-13, 15-16, 18-21, 23-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hammer et al. (USPTO English translation, DE 4438961).

Hammer et al. has a fiber containing (page 8, paragraph 2) tubular film (sausage casing) (page 8, paragraph 2) which does not contain collagen (see entire document). The tubular film is based on thermoplastic starch, an edible biopolymer (as defined in claim 2), and is produced by the following process. The biopolymer is mixed with at least one edible plasticizer, such as diglycerol or sorbitol (as defined in claim 4) (page 4, paragraph 2), at least one lubricant, such as lecithin or vegetable oil (as defined in claim 6) (page 6, paragraph 1), at least one crosslinker such

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as dialdehyde, dicarboxylic acid, di-isocyanate or diepoxide (crosslinking agents as defined in claim 8) (page 5, paragraph 2) and fibers (page 8, paragraph 2). The resultant mixture is melted (homogenous melt) (page 7, paragraph 1) to give a thermoplastic mass (page 3, paragraph 3) which is extruded (shaped using extruder) (page 7, paragraph 1) and then stretched and blown (stretching by blowmolding) (page 7, paragraph 1). Potato starch (page 7, last paragraph) is edible. Thus the tubular film is edible.

Casein (page 5, paragraph 2), chitosan and alginate (page 6, paragraph 2) are other biopolymers, cleavage products and derivatives thereof added to the thermoplastic starch which comprises the bulk of the tubular film, in the amount of 5 to 70 weight % (page 6, paragraph 2). Thus the content of biopolymer (thermoplastic starch, chitosan, alginate), cleavage products and derivatives thereof overlaps with the claimed range of from 10 to 90 % by weight (claim 3) and 15 to 80 % by weight (claim 18). The amount of 0.5 to 20 weight % plasticizer (page 4, paragraph 3) overlaps with the claimed range of 0.5 to 50 % (claim 5) and 20 to 25 % by weight (claim 19). The amount of 2 to 12 weight % lubricant (page 6, paragraph 1) overlaps with the claimed range of 2 to 30 % (claim 7) and 5 to 20 weight % (claim 20). The amount of 2 to 20 weight % crosslinker (crosslinking agent) (page 5, paragraph 1) overlaps with the claimed range of 0.2 to 30 % (claim 9) and 0.5 to 25 weight % (claim 21). The fibers are in the form of cotton linters (claim 10) (page 5, paragraph 4) in the amount of 3 to 25 weight % (page 5, paragraph 4) which overlaps with the claimed range of 2 to 30 weight % (claim 12) and 5 to 20 weight % (claim 23).

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A coating is applied on the outside and on the inside of the fiber-reinforced thermoplastic starch tubular film (page 7, paragraph 2). Thus the tubular film includes three layers of which only the central layer comprises fibers (claim 15).

The crosslinker is present in the tubular film when the film is extruded and stretched (page 6, paragraph 1). It thus functions to post-harden the film by crosslinking the film (claim 16).

The tubular film is a seamless sausage casing (page 8, paragraph 2) (claims 26-27). The sausage meat filling is the foodstuff packaged in the tubular film sausage casing (page 11, last paragraph) (claim 25). Food coloring pigment is added to sausage casings as is notoriously well known in the art.

As shown above, the composition of the tubular film of Hammer et al. is the same as that of Applicant. Thus the claimed 12-15 % longitudinal elongation at break of the tubular film (shaped body) (claim 28) and the claimed 20-26 % transverse elongation at break are within the realm of Hammer et al.

The caliber of the tubular film is 60 mm (page 8, paragraph 2) and the wall thickness is 90 microns (not " 90 m [sic]" as clarified in the US equivalent 5928737, column 5, lines 10-15). The claimed thickness range of from 30 to 60  $\mu\text{m}$  (not mm) (claim 24) is thus within the scope of routine experimentation in the absence of unexpected results.

5. Claims 11, 22, 28-29 are rejected as being unpatentable over Hammer et al. as applied to claims 1-10, 12-13, 15-16, 18-21, 23-27, and further in view of Andersen et al.

Andersen et al. teaches molded and extruded articles having a starch matrix reinforced with fibers (abstract). The fiber can be woodpulp (softwood) with an average length of about 3.5

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mm (column 13, lines 30-40) which is in the claimed range of 0.2 to 5 mm (claim 11), or cotton linter with an average length of from 0.3 to 1 mm (column 46, lines 30-40) which overlaps the claimed range of 0.5 to 2 mm (claim 22). Andersen et al. thus teaches the equivalency of woodpulp fibers with cotton linter fibers in the capacity of fiber reinforcement of starch.

Therefore it would have been obvious to one of ordinary skill in the art to have substituted woodpulp fibers with the accompanying fiber length for the cotton linter fibers in the starch article of Hammer et al. in order to obtain an alternate tubular film article with the desired fiber reinforcement.

#### ***Response to Arguments***

6. Applicant's arguments are moot in view of the new rejections. However, Applicant's arguments with regards to the valid application of Andersen et al. as a secondary reference are addressed below in order to advance prosecution.

7. Applicant argues that edibility is not an issue for Andersen et al. and that there is no disclosure that the softwood fibers could be edible.

Applicant is respectfully reminded that animals eat the bark of trees. Treebark and cotton linters are cellulosic products, both of which are "edible" in the sense that animals do eat them. Furthermore, Andersen et al. does specifically disclose edible articles made out of edible films (sheets) ('145, column 2, lines 40-55).

8. Applicant argues that edible films should not be tough, rather that these films should be chewable. Applicant is again reminded that animals chew tree bark.

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9. Applicant's argument also implies that the fracture toughness taught by Andersen et al. means that a film with fracture toughness is not chewable.

Applicant is respectfully reminded that fracture toughness means resistance to fracture. Andersen specifies that starch films are very brittle and have low fracture energies (column 2, lines 45-55). Thus the addition of fiber reduces the brittleness of the starch film by increasing the fracture energy and hence the fracture toughness or resistance to fracture.

Any inquiry concerning this communication should be directed to Sow-Fun Hon whose telephone number is (703)308-3265 or (571)272-1492 after December 29, 2003.. The examiner can normally be reached Monday to Friday from 9:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon, can be reached on (703)308-4251 or (571)272-1498 after December 29, 2003. The fax phone number for the organization where this application or proceeding is assigned is (703)872-9311.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0661.

*SH*  
Sow-Fun Hon  
12/24/03

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12/29/03